Zonet®

ZEW1642S

802.11n **Wireless** PCI Adapter

USER MANUAL

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Chapter 1 Introduction

1.1 Welcome

ZEW1642S-Wireless 802.11n PCI Adapter delivers an incredible speed to your desktop PC without running wires. It complies with the IEEE 802.11n standard, making it backward compatible with 802.11b/g networks for assured compatibility. Advanced 64/128-bit WEP, WPA/WPA2 encryption is supported to provide secure access for your data. Once you're connected, you can stay in touch with your email, access to the internet and send large files across the network at greater distances than ever before.

1.2 Product Feature

- Complies with IEEE 802.11n, IEEE 802.11g and IEEE 802.11b standards
- Provides 32-bit PCI interface
- Provides 300Mbps receiving rate and 300Mbps sending rate
- Supports 20MHz/40MHz frequency width
- Auto-detects and changes the network transmission rate
- Provides two work modes: Infrastructure and Ad-Hoc
- Supports Soft AP to establish your wireless LAN networking
- supports PS3, PSP, Wii and Nintendo DS connecting with Internet and Xlink Kai to enjoy on-line gaming
- Supports 64/128-bit WEP, WPA, WPA2 encryption methods and 802.1x security authentication standard
- WPS (Wi-Fi Protected Setup) simplify the security setup and management of Wi-Fi networks.
- Supports WMM for Multimedia Applications with Quality of Service in Wi-Fi® Networks
- Supports Windows 2000 / XP / Vista / 7

1.3 Contents of Package

- One ZEW1642S
- One Installation CD
- One Quick Installation Guide

Contact your local authorized reseller or the store purchased from for any items damaged and/or missing.

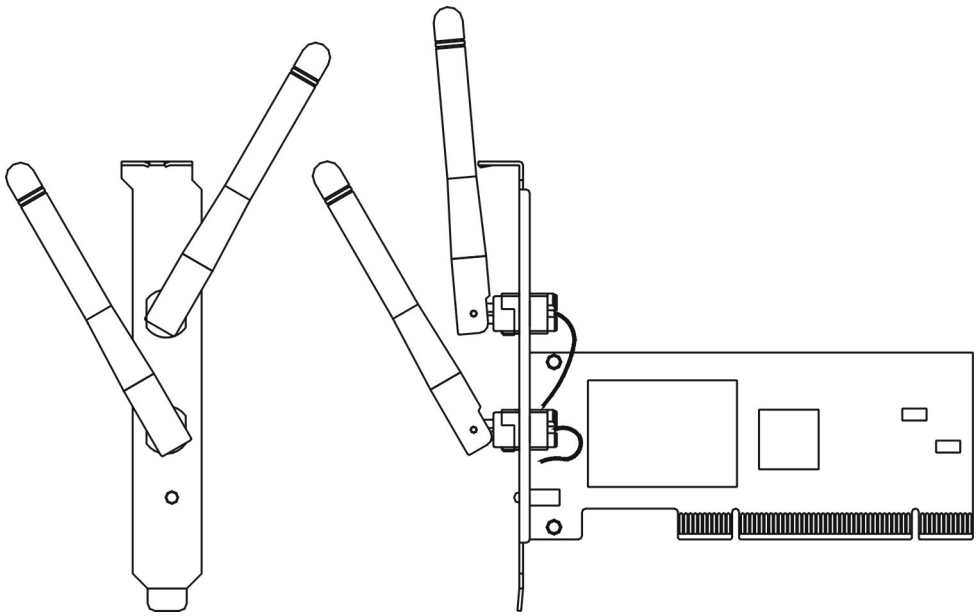
1.4 Before you begin

You must have the following:

- A desktop PC with an available 32-bit PCI slot
- Minimum 300MHz processor and 32MB memory
- Windows 2000, XP, 2003, Vista, 7
- A CD-ROM Drive
- PCI controller properly installed and working in the desktop PC
- 802.11n or 802.11b/g Access Point (for infrastructure Mode) or another 802.11n or 802.11b/g wireless adapter (for Ad-Hoc; Peer-to-Peer networking mode.)

1.5 Designing your ZEW1642S

ZEW1642S supports up to 300Mbps connections. It is fully compliant with the specifications defined in 802.11n standard.



The status LED indicators of ZEW1642S are described in the following.

- Lnk/Act ON (Green): Indicates a valid connection
- Lnk/Act Flashing: Indicates the Adapter is transmitting or receiving data.

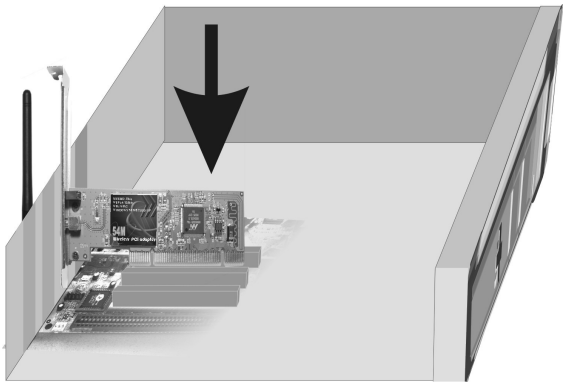
Chapter 2 Installation

NOTE:

1. *For future driver upgrading, please visit our website at www.zonetusa.com*
2. *Snap-shot screens of the following installation procedure are based on Windows XP. Installation procedures will be similar for other windows operating systems.*

1. Install ZEW1642S into your computer as following steps:

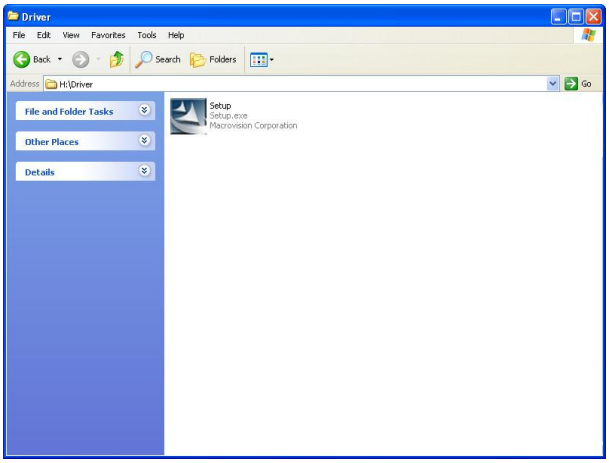
- Open your PC case and locate an available PCI on the motherboard.
- Slide ZEW1642S into the PCI slot. Make sure that all of its pins are touching the slot's contacts. You may have to apply a bit of pressure to slide ZEW1642S all the way in. after it is firmly in place, secure its fastening tab to your PC's chassis with a mounting screw. Then close your PC.
- Power on the PC.



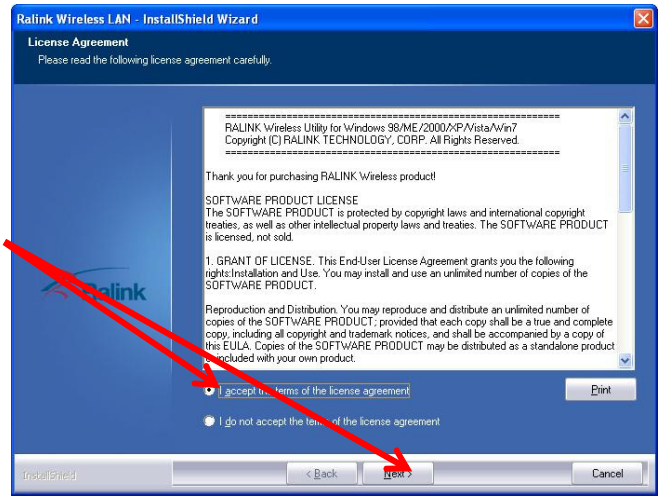
2. Select ***Cancel*** when "Found New Hardware" window appears.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

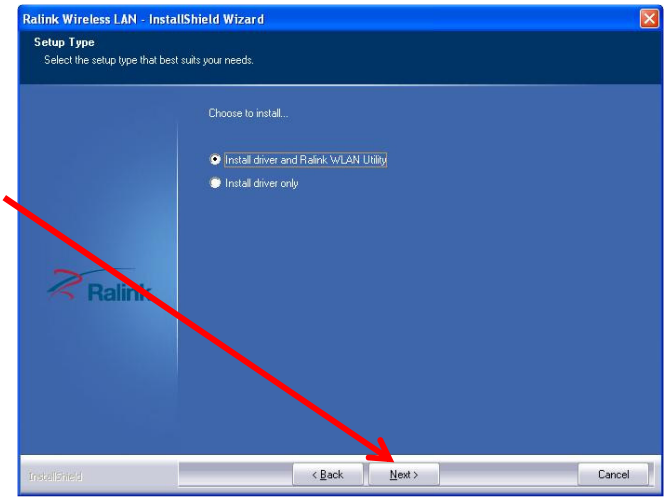
3. Insert Installation CD to your CD-ROM drive. Browse CD and double-click **setup.exe** in Driver folder to execute it. The wizard will run and install all necessary files to your computer automatically.



4. Click ***Next*** to accept the Agreement. Or click ***Cancel*** to exit.

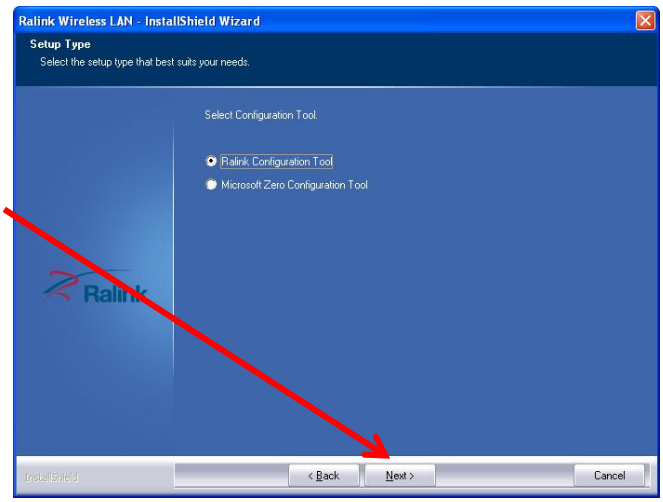

Ralink Wireless LAN - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
RALINK Wireless Utility for Windows 98/ME/2000/XP/Vista/Win7
Copyright (C) RALINK TECHNOLOGY, CORP. All Rights Reserved.
Thank you for purchasing RALINK Wireless product!
SOFTWARE PRODUCT LICENSE
The SOFTWARE PRODUCT is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. The SOFTWARE PRODUCT is licensed, not sold.
1. GRANT OF LICENSE. This End-User License Agreement grants you the following rights:Installation and Use. You may install and use an unlimited number of copies of the SOFTWARE PRODUCT.
Reproduction and Distribution. You may reproduce and distribute an unlimited number of copies of the SOFTWARE PRODUCT; provided that each copy shall be a true and complete copy, including all copyright and trademark notices, and shall be accompanied by a copy of this EULA. Copies of the SOFTWARE PRODUCT may be distributed as a standalone product or included with your own product.
I accept the terms of the license agreement
I do not accept the terms of the license agreement
Print
InstallShield
< Back
Next >
Cancel

5. Select ***Install driver and Ralink WLAN Utility*** or ***Install driver only*** then click ***Next***.

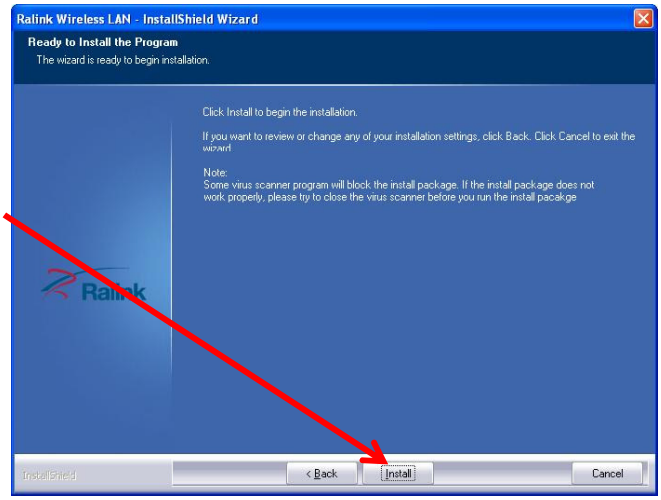


6. Select ***Ralink Configuration Tool*** or ***Microsoft Zero Configuration Tool*** then click ***Next***.

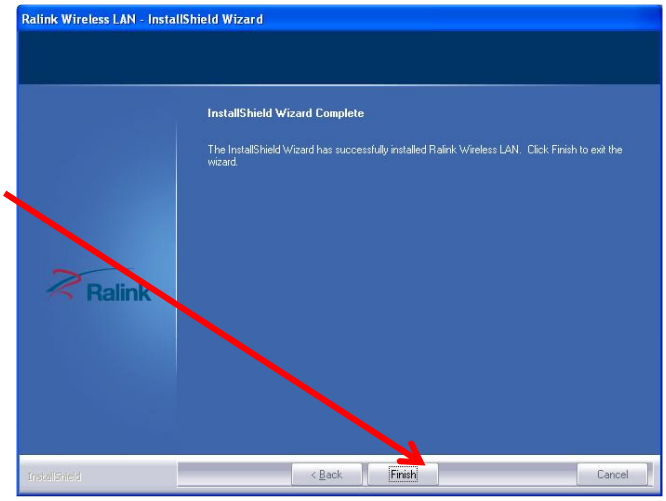
a. It's recommended to select **Ralink Configuration Tool**, which provides fully access to all function of ZEW1642S.
b. If you prefer to use the wireless configuration tool provided by Windows XP or Vista, please select **Microsoft Zero Configuration Tool**.



7. Click ***Install*** to start the installation.


Ralink Wireless LAN - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
Note:
Some virus scanner program will block the install package. If the install package does not work properly, please try to close the virus scanner before you run the install pacakge
Ralink
InstallShield
< Back
Install
Cancel

8. Click ***Finish*** to complete the software installation.



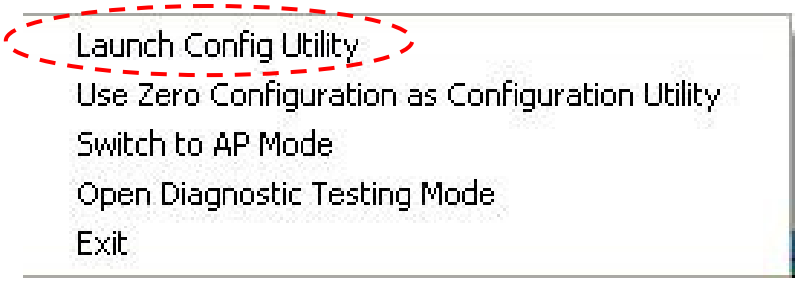
You will see a tray icon appear in your system tray at the bottom of the screen after the software and hardware installation completed successfully.

Chapter 3 Configuration

3.1 Station Mode

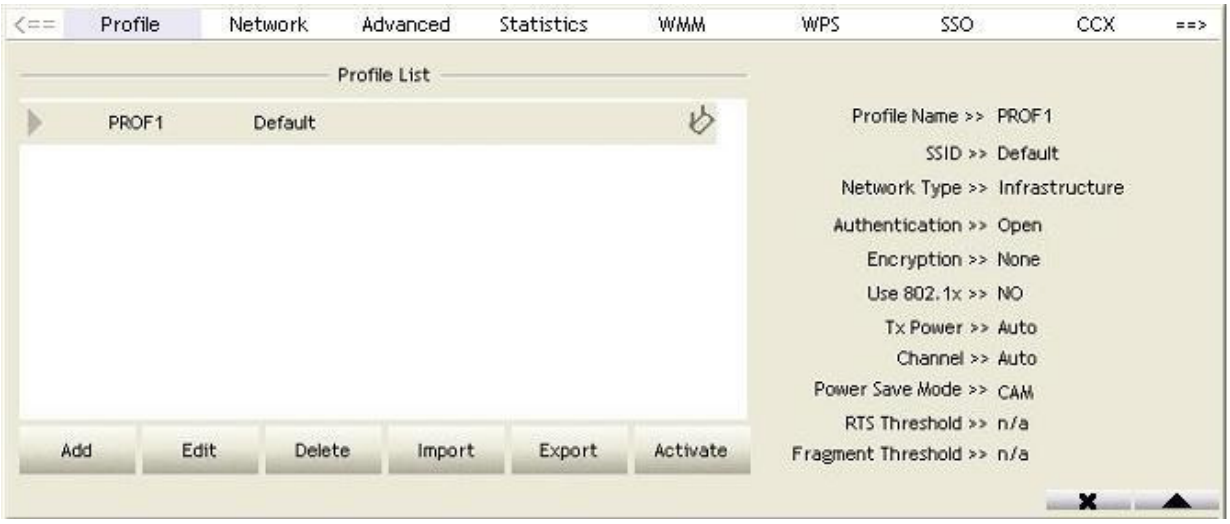
Station Mode is the default access mode for ZEW1642S.
In this mode, ZEW1642S serves as a client to receive the wireless signals to access the Internet.

Double-click the tray icon to launch the configuration utility.
Or right click the tray icon and select ***Launch Config Utility***.



3.1.1 Profile

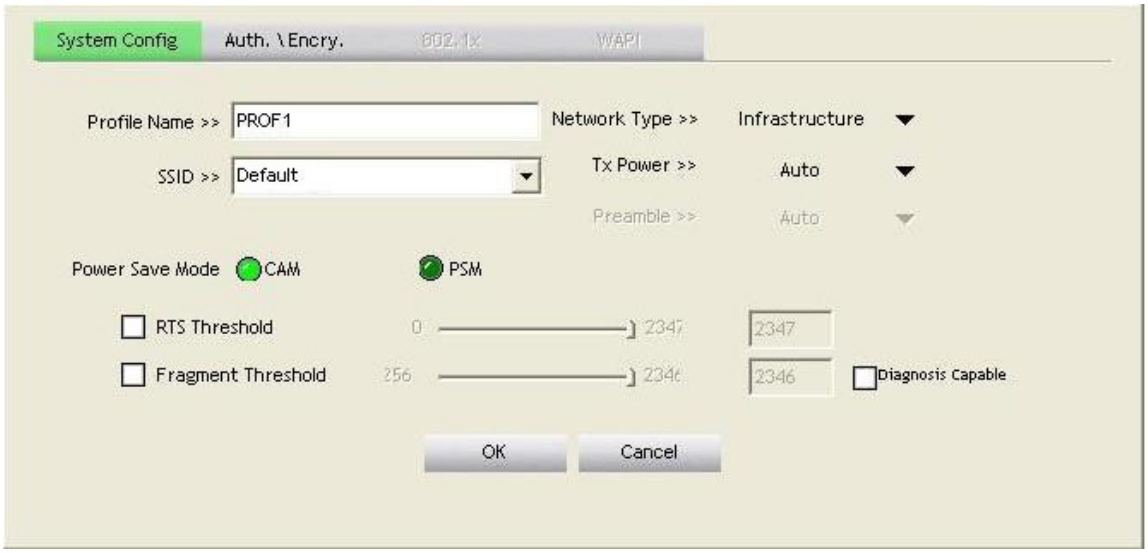
Profile can keep your favorite wireless setting among your home, office, and other public hotspot. You may save multiple profiles and activate the one at your preference.



- **Add:** to create a new profile
- **Edit:** to edit/modify/change parameter of an existing profile
- **Delete:** to delete an existing profile
- **Activate:** to make an existing profile become active and to connect

3.1.1.1 Add/Edit Profile

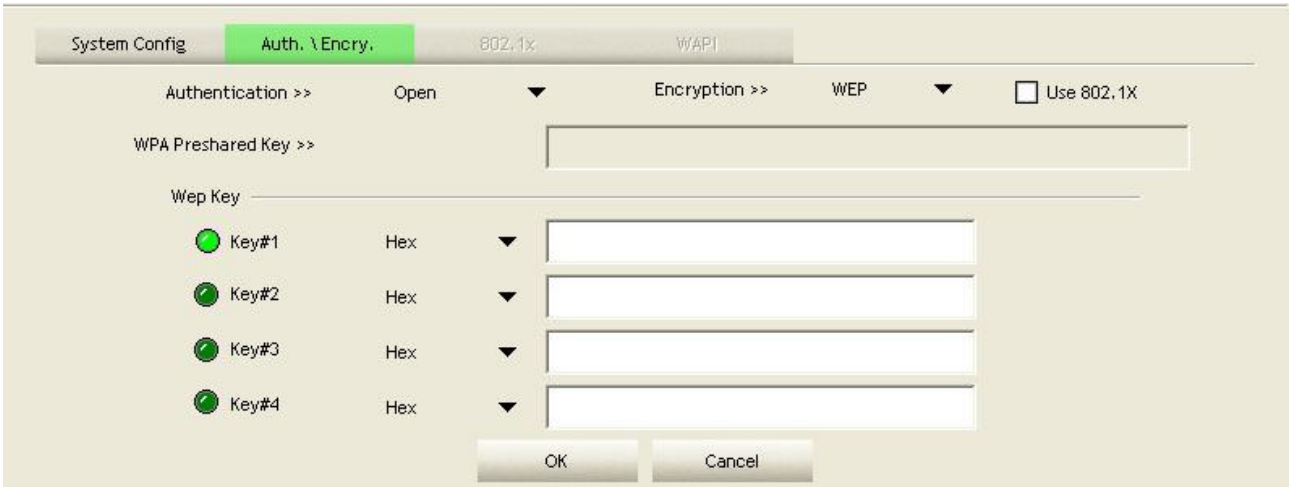
a. System Configuration


System Config Auth. \ Encry. 802.1x WAPI
Profile Name >> PROF1
Network Type >> Infrastructure
SSID >> Default
Tx Power >> Auto
Preamble >> Auto
Power Save Mode CAM PSM
RTS Threshold 0 2347 2347
Fragment Threshold 256 2346 2346
Diagnosis Capable
OK Cancel

- **Power Save Mode:**
  a. **CAM** (Constantly Awake Mode) – ZEW1642S will stay power-ON as long as the computer is connected to a power outlet.
  b. **PSM** (Power Saving Mode) – ZEW1642S will hibernate when the computer is hibernating.

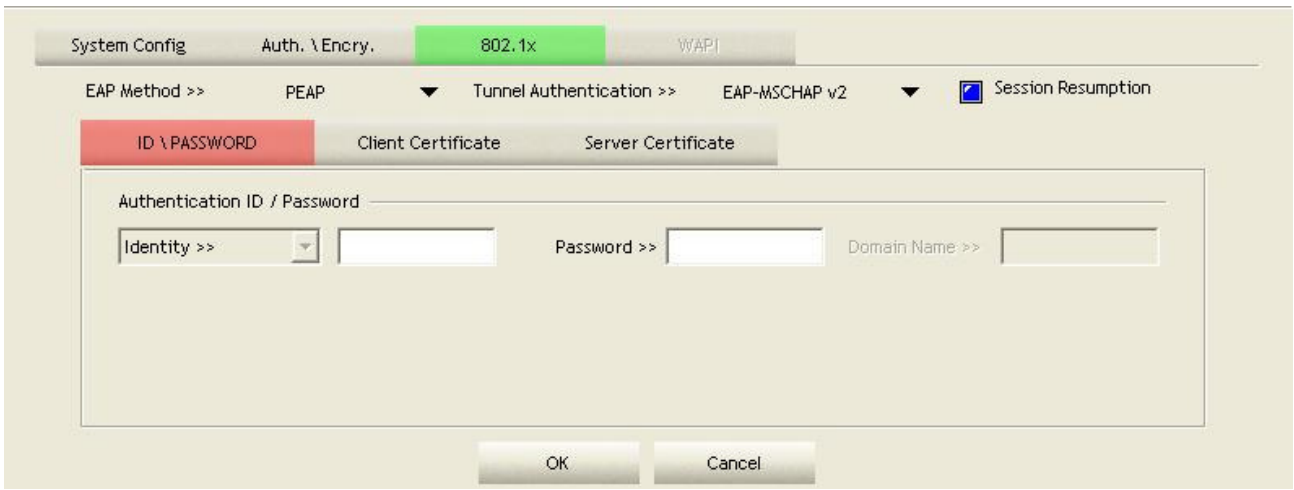
- **Network Type:**
  a. Infrastructure – A wireless Router and/or Access Point is required.
  b. Ad-hoc – Peer-to-Peer network, no base station required.
- **TX Power:**
  Amount of transmit power used by the radio transceiver to send out signal. User can choose different value in the drop down menu
- **Preamble:**
  Only available under Ad-hoc mode. Value can be chose from Auto, Long, or Short
- **Threshold:**
  Frame size when RTS/CTS handshake performs before attempt to transmit.
  a. RTS Threshold: Default value = 2347
  b. Fragment Threshold: Default value = 2346

b. Authentication and Encryption



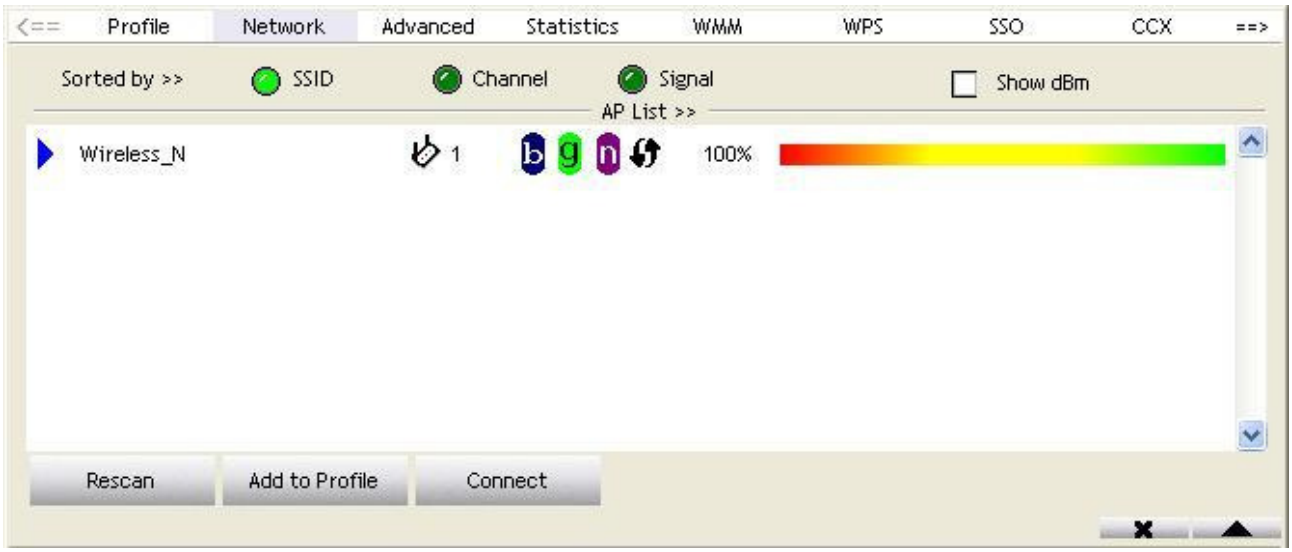
- **Authentication:** Open, Shared, WPA(CCKM capable), WPA-PSK, WPA2(CCKM capable), WPA2-PSK, WPA-NONE, WAPI-PSK, WAPI-CERT
- **Encryption:** None, WEP, TKIP, AES, TKIP(MFP), AES(MFP), SMS4

c. 802.1X



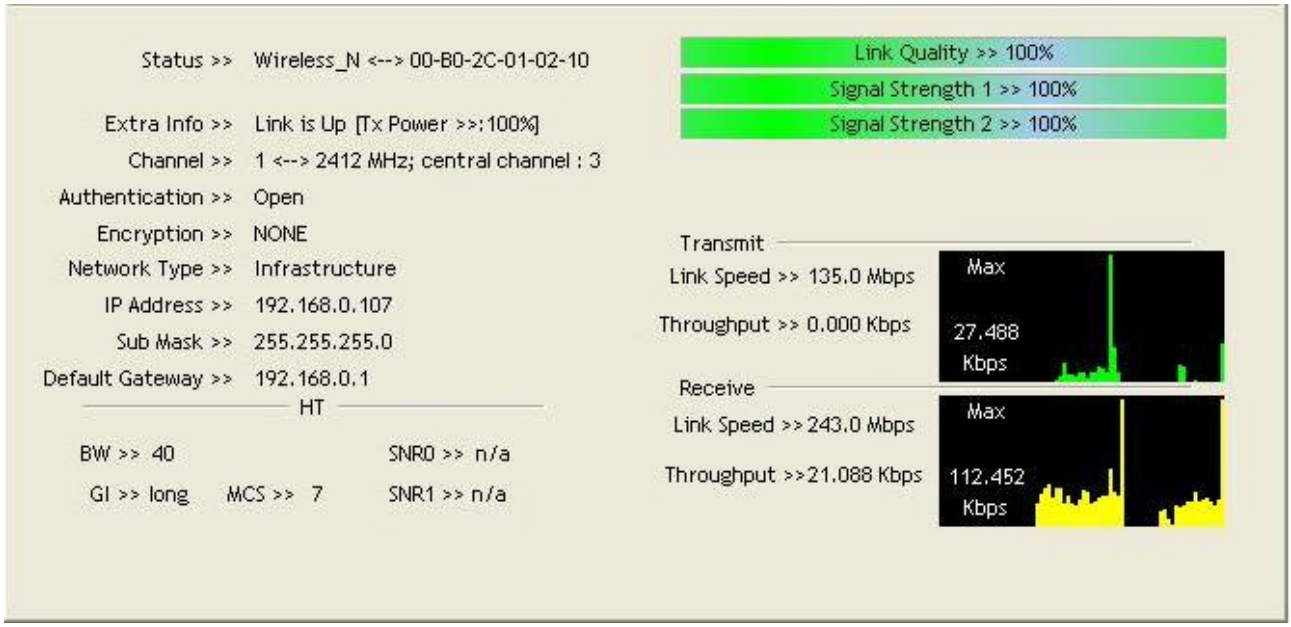
3.1.2 Network

Under Network tab, you will know information of all surrounding wireless networks from the last scan.
Click ***Rescan*** to update and refresh.



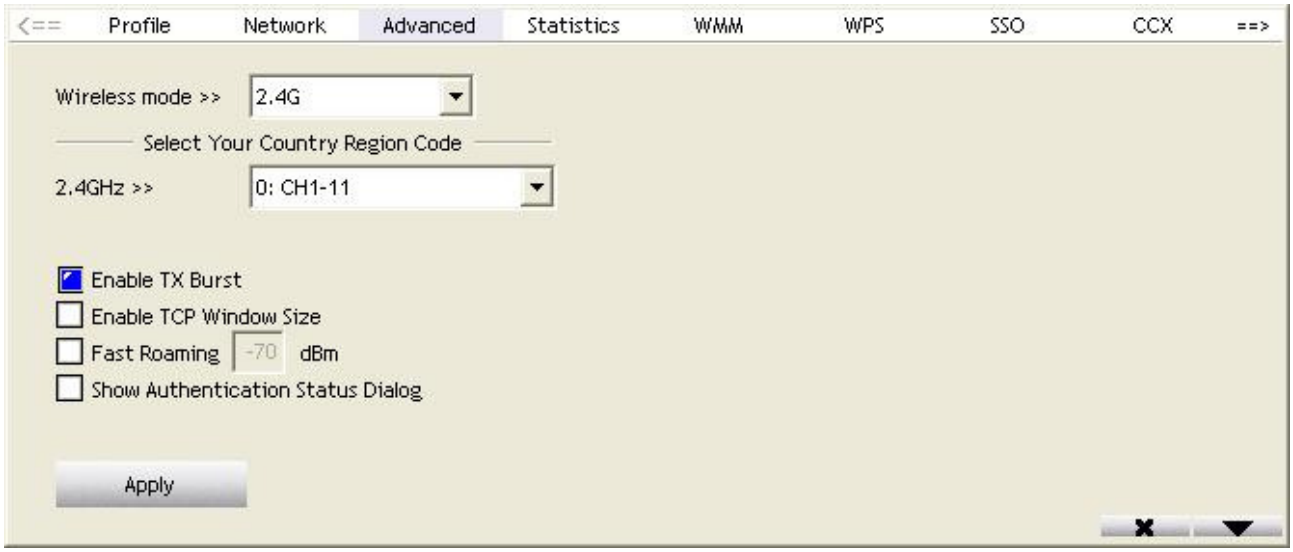
3.1.3 Link Status

Link status page shows detail information about the current connection.



3.1.4 Advanced

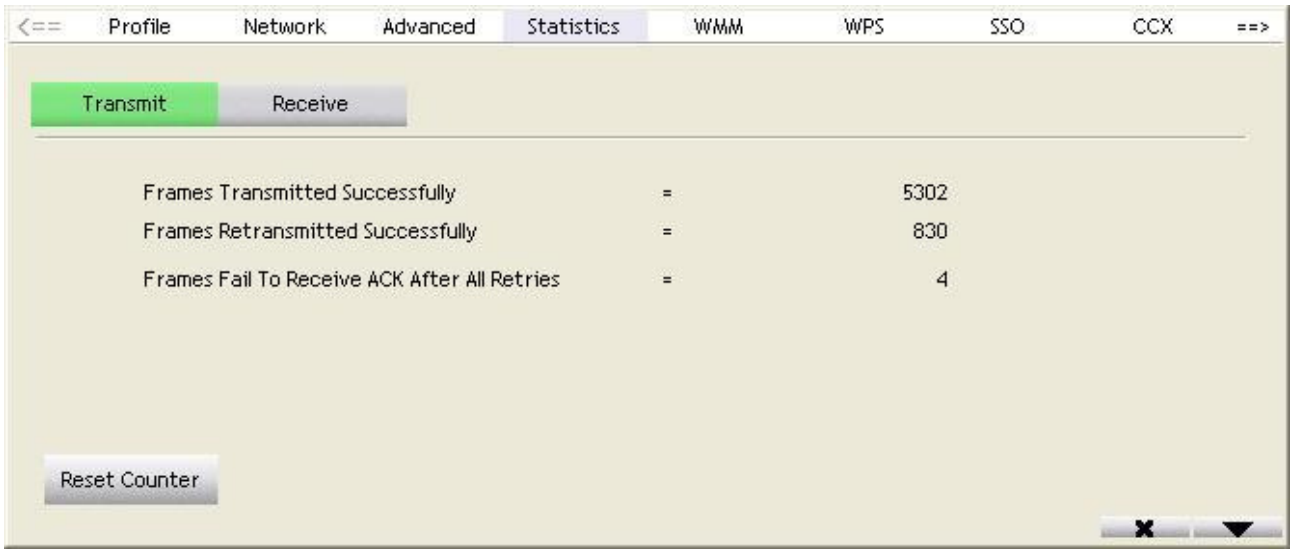
The Advanced tab shows Advance function of UI



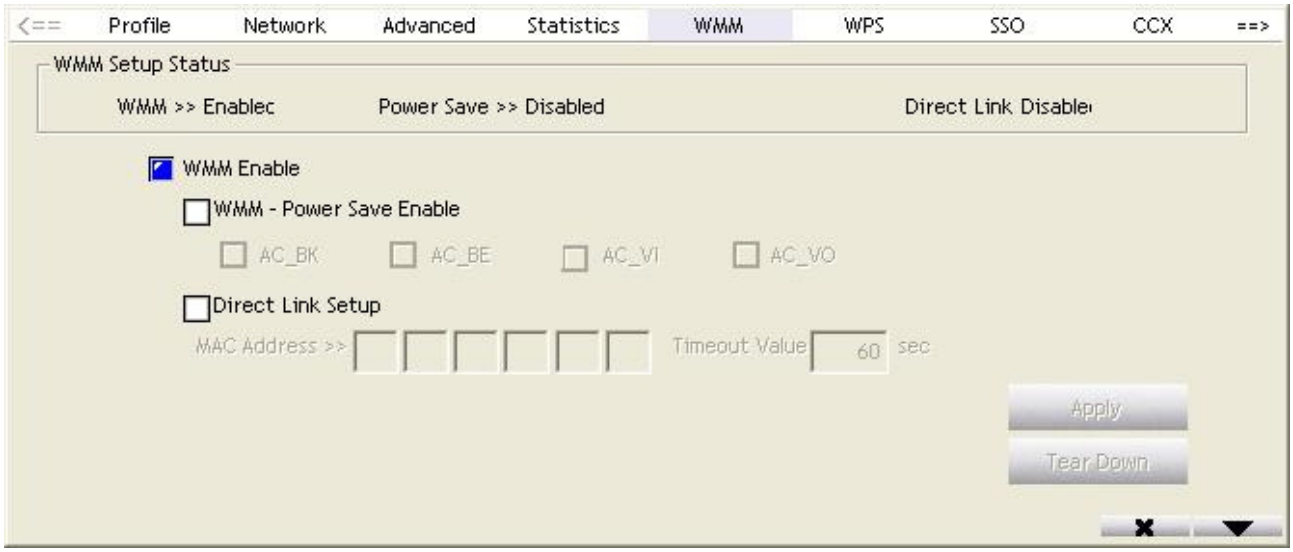
- **Enable Tx Burst:** Ralink's proprietary frame burst mode. Suggest using with an Access Point that has the same technology.
- **Enable TCP Window Size:** Check this box and the configuration utility will adjust TCP window size automatically to get better performance.
- **Fast Roaming at:** Fast to roaming, setup by transmitting power

3.1.5 Statistics

Statistics tab displays the detail counter information based on 802.11 MIB counters. This page translates that MIB counters into a format easier for user to understand.



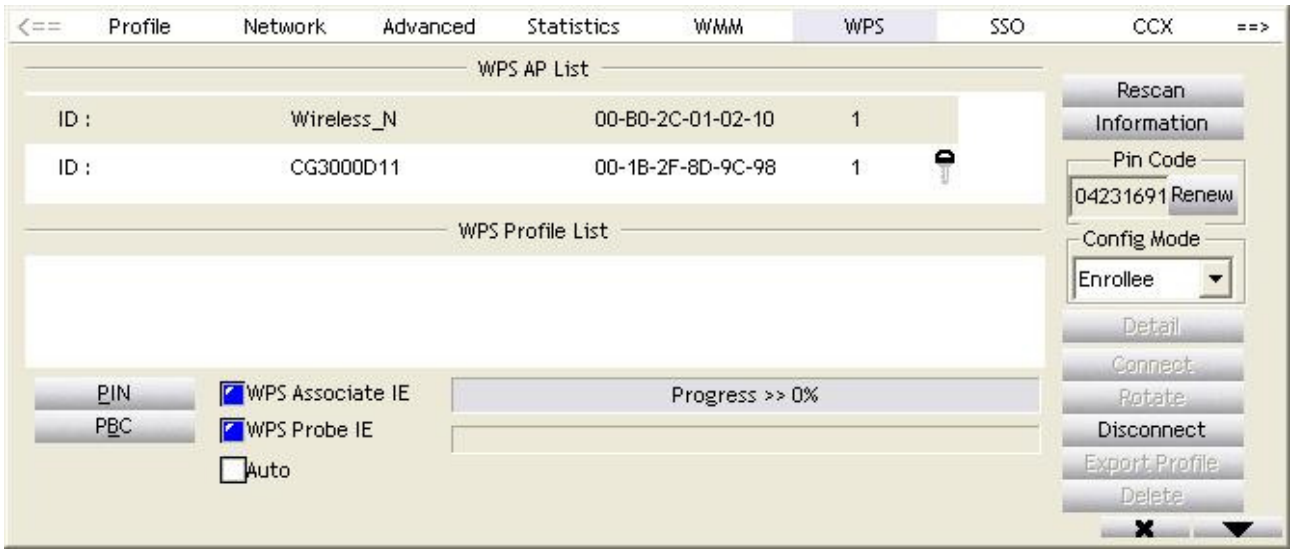
3.1.6 WMM



- **WMM Enable:** Enable Wi-Fi Multi-Media
- **WMM - Power Save Enable:** Enable WMM Power Save
- **Direct Link Setup Enable:** Enable DLS (Direct Link Setup). This function will greatly improve the data transfer rate between WMM-enabled wireless devices.
  - **a. MAC Address:** Input the MAC address of another WMM-enabled wireless device you wish to establish a direct link.
  - **b. Timeout Value:** must be between 0~65535 in integer. If the value is zero represents it always connects. Default value of Timeout Value is 60 seconds.
  - **c. Tear Down:** If you want to remove a specific wireless device from DLS table, select the device and click this button to remove it.

3.1.7 WPS

WPS tab supports the configuration setup using PIN configuration method or PBC configuration method.
WPS(Wi-Fi Protected Setup) simplify the security setup and management of Wi-Fi networks.

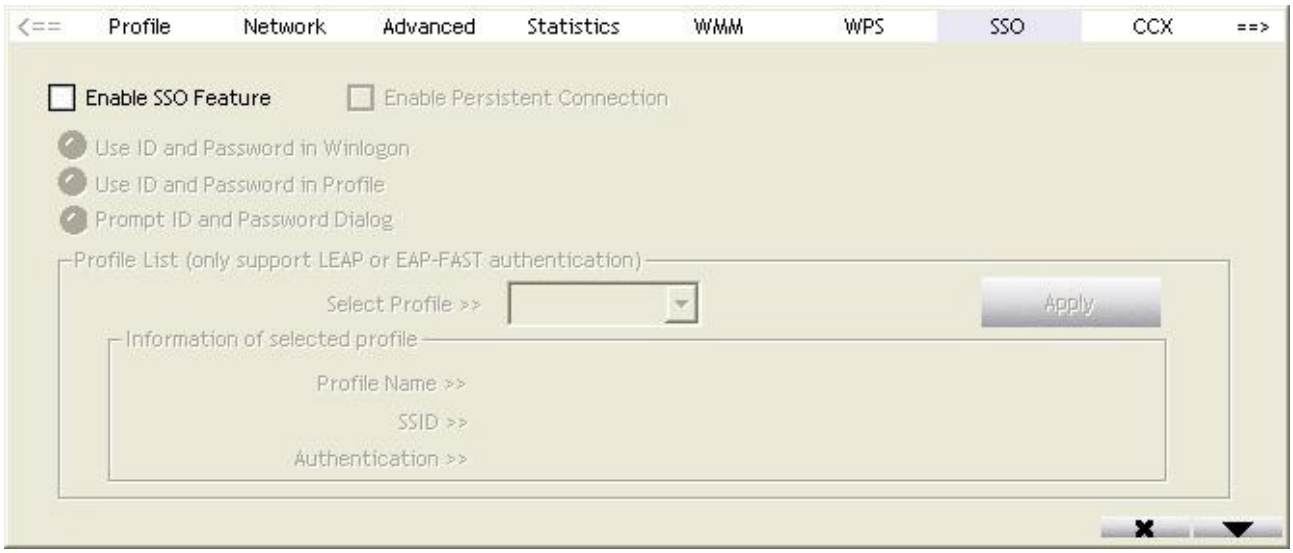


- **PIN:** Enter the Pin code and click ***PIN*** to automatically connect ZEW1642S with wireless devices around.
- **PBC:** Click ***PBC*** to complete auto-check and connections between ZEW1642S and other wireless device.
- **Rescan:** Update information on surrounding wireless network.
- **Information:** Display the information about WPS IE on the selected network.
- **Pin Code:** 8 digit numbers.
- **Renew:** Click to update the Pin code.
- **Config Mode:** Enrollee or external Registrar.
- **Detail:** Information about Security and Key in the credential.
- **Connect:** click to connect the WPS wireless network.
- **Rotate:** Connect to the next network inside credentials.
- **Disconnect:** to disconnect the connected wireless network.
- **Export Profile:** Export all credentials to Profile.
- **Delete:** Delete an existing credential.
- **WPS associate IE:** Send the association request with WPS IE during WPS setup.
- **WPS probe IE:** Send the probe request with WPS IE during WPS setup.

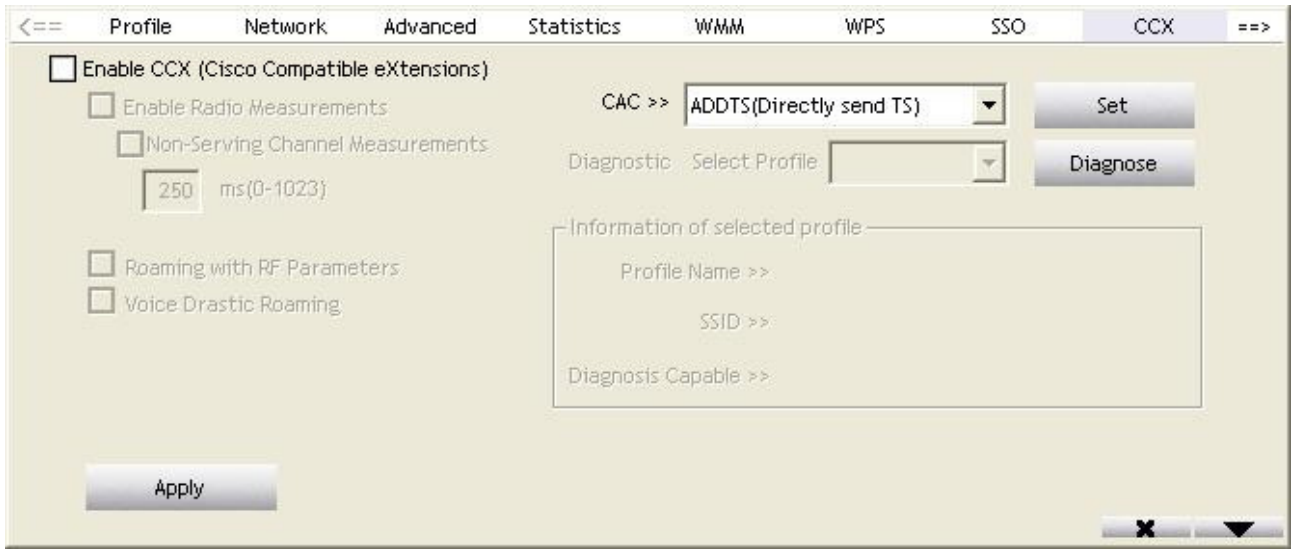
Note: *When clicking PIN or PBC button, please don't click* ***Rescan*** *within two-minute. If you want to abort this setup within the interval, restart PIN/PBC or press Disconnect to stop WPS.*

3.1.8 SSO

SSO (Backup Exec for Windows servers SAN Shared Storage Option) is a strong LAN-free backup solution.



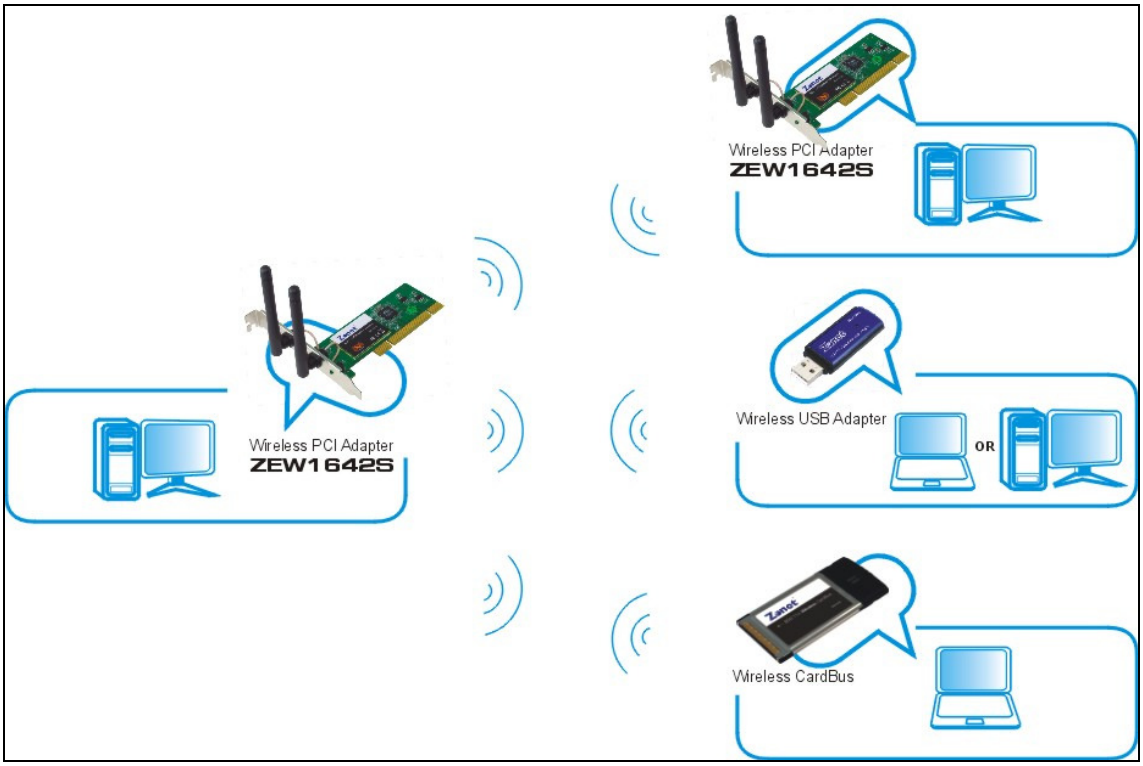
3.1.9 CCX



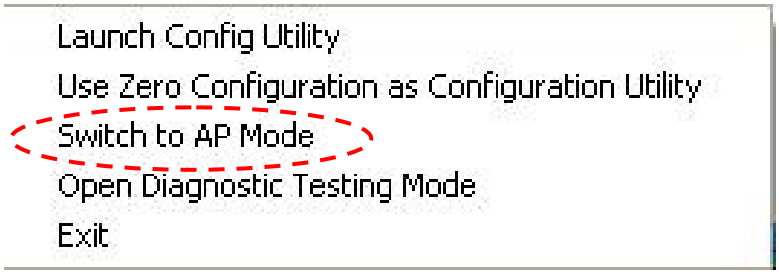
- **Enable CCX(Cisco Compatible eXtensions):**
  - **Enable Radio Measurement:** channel measures every 0~1023 milliseconds

3.2 AP Mode

ZEW1642S also can serve as an access point to transmit wireless signals and create wireless network, allowing other wireless clients to access the network.

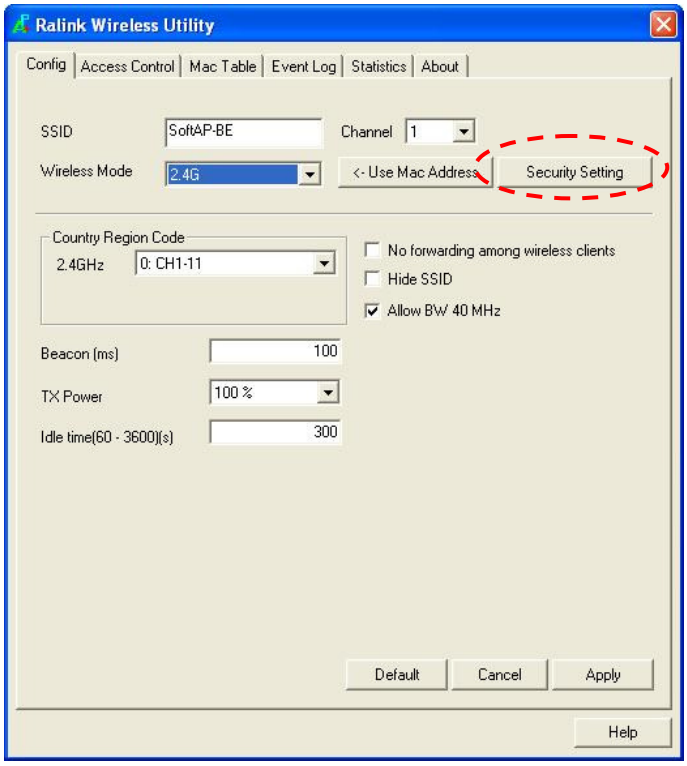


Right-click the tray icon and select ***Switch to AP Mode.***

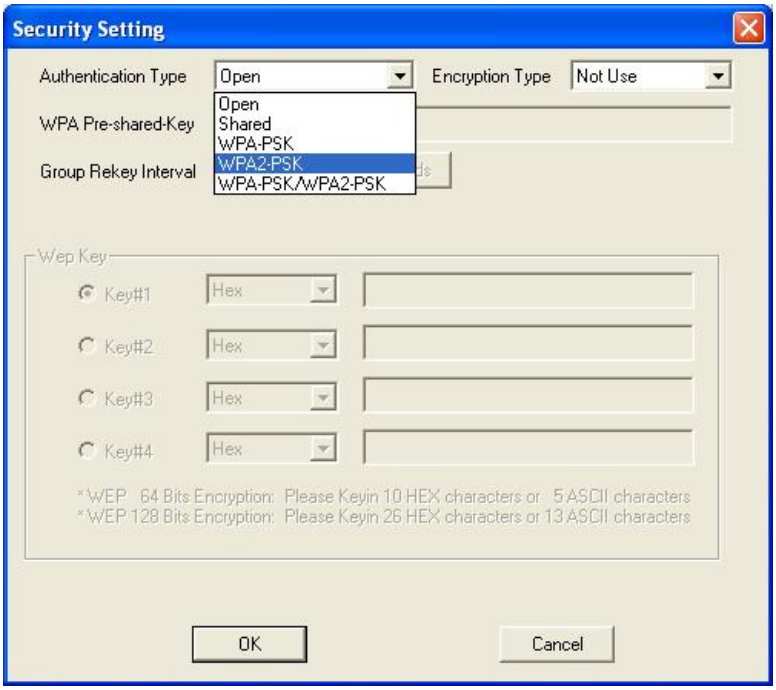


3.2.1 Configuration

In soft AP configuration Utility page, you can make some basic configurations, such as wireless network name, mode, channel and authentication.



Click **Security Setting** button to make different security configurations of wireless communication, and you can choose the authentication type or encryption type.

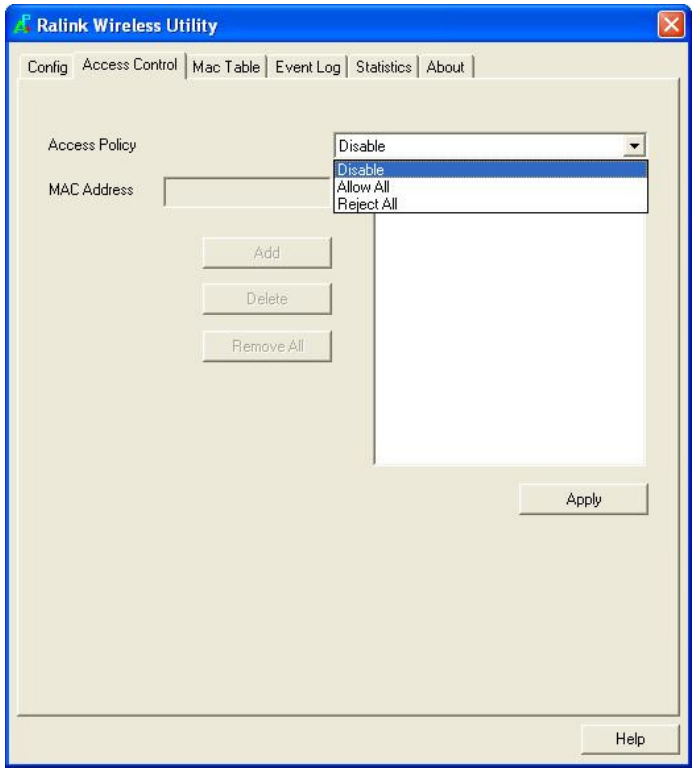


Note:

1. *The Hex characters include 0~9 numbers and a~f letters.*
2. *ASCII characters include any numbers/letters and characters.*

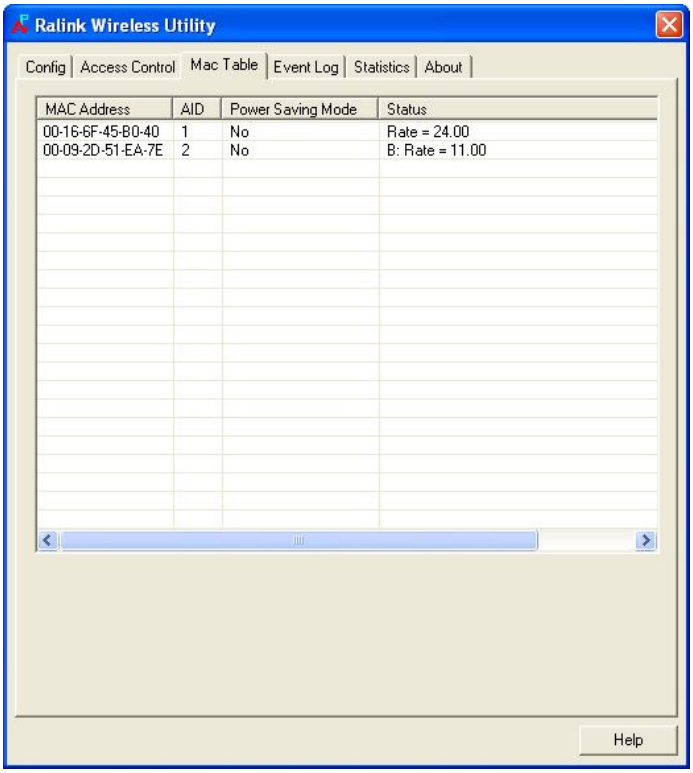
3.2.2 Access Control

Choose **Access Control** tab to start MAC control. Access control includes **Allow All** and **Reject All**. After editing the MAC address access list, only the MAC in the Allow All list could access the Soft AP.



3.2.3 MAC Table

MAC Table page shows the information of the wireless devices accessed to this soft AP.



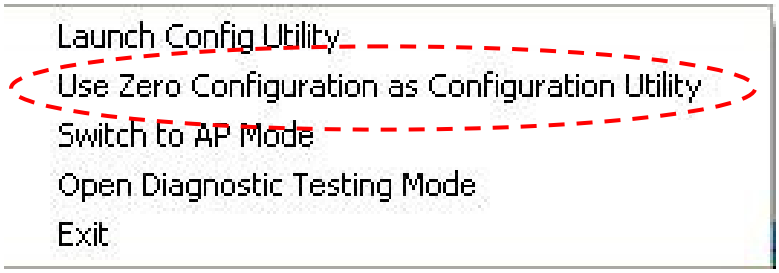
3.2.4 Switch to Working Station mode

In the Soft AP mode, right-click the icon in the system tray and choose **Switch to Station Mode**, then ZEW1642S is switching to working station mode with an interface of working station.

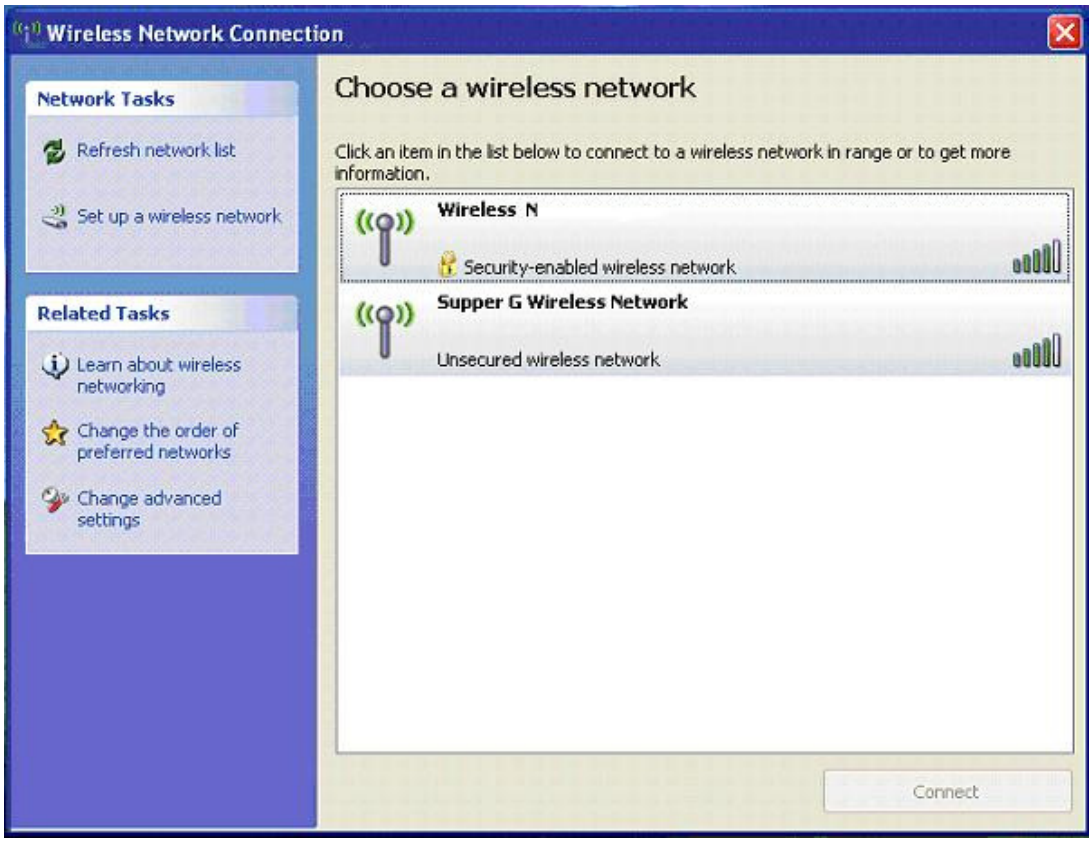
3.3 Use Zero Configuration

Windows XP and Vista has a built-in wireless network configuration utility "Windows Zero Configuration" (WZC). It is a built in service to configure your wireless clients from Windows

1. Start using WZC, right click the tray icon and select **Use Zero Configuration as Configuration utility.**

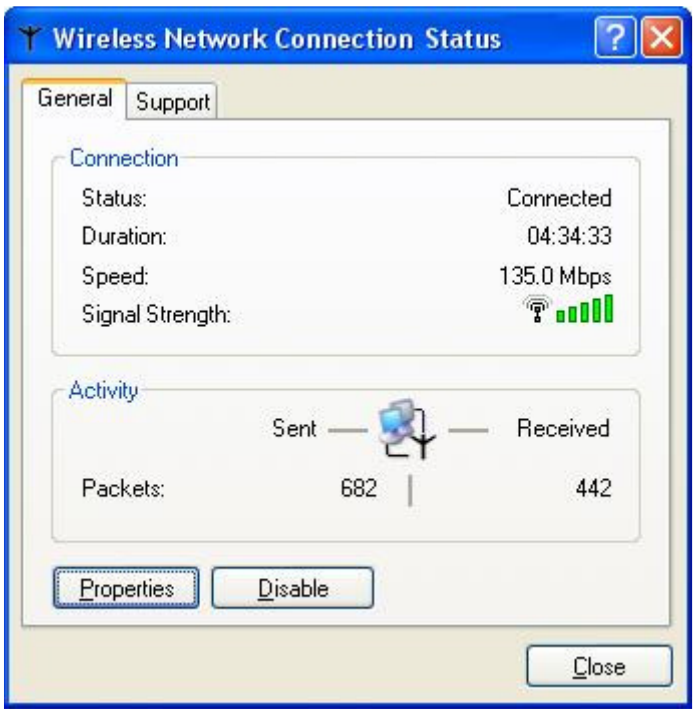


2. The windows wireless network connection will appear. Double click the wireless network icon on the system tray to check the wireless network, choose the network and click ***Connect*** to setup the association.

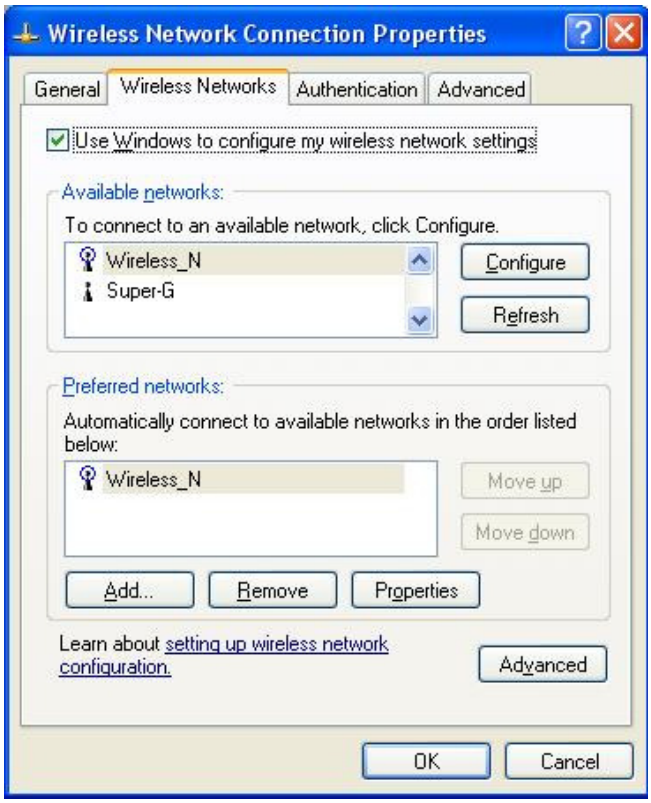

Wireless Network Connection
Network Tasks
Refresh network list
Set up a wireless network
Related Tasks
Learn about wireless networking
Change the order of preferred networks
Change advanced settings
Choose a wireless network
Click an item in the list below to connect to a wireless network in range or to get more information.
Wireless N
Security-enabled wireless network
Supper G Wireless Network
Unsecured wireless network
Connect

3. If your wireless router has been encrypted, there will be a window appeared for input the key. Please input the key and click ***Connect***, then the connection connect.

4. To configure the wireless connect properties, please right click the wireless icon in the system tray and choose **Status** to open the page **Wireless Network Connection Status**.



5. Click **Properties** button in **General** page and choose the tab **Wireless Networks** to add the **SSID** of available network by clicking **Add**, if there are several available networks, linking priority could be configured by the button **Move up** and **Move down**. The icon shows the current linked AP. Click **Properties** to configure authentication of wireless connection.



Wireless Network Connection Properties
General
Wireless Networks
Authentication
Advanced
Select this option to provide authenticated network access for wired and wireless Ethernet networks.
Enable network access control using IEEE 802.1X
EAP type:
Smart Card or other Certificate
Properties
Authenticate as computer when computer information is available
Authenticate as guest when user or computer information is unavailable
OK
Cancel

6. **Advanced** page configures firewall and connection sharing.

Wireless Network Connection Properties
General
Wireless Networks
Authentication
Advanced
Internet Connection Firewall
Protect my computer and network by limiting or preventing access to this computer from the Internet
Learn more about Internet Connection Firewall.
If you're not sure how to set these properties, use the Network Setup Wizard instead.
Settings...
OK
Cancel

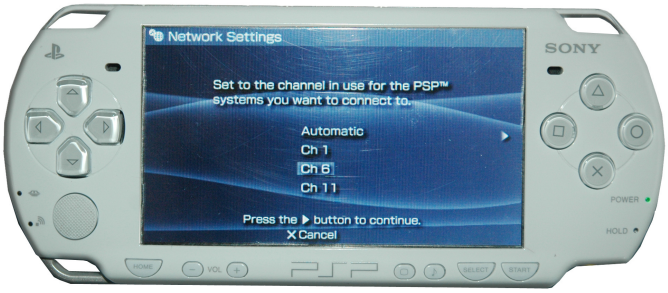
Chapter 4 How to connect with PSP

4.1 Configure PSP with Ad-Hoc mode

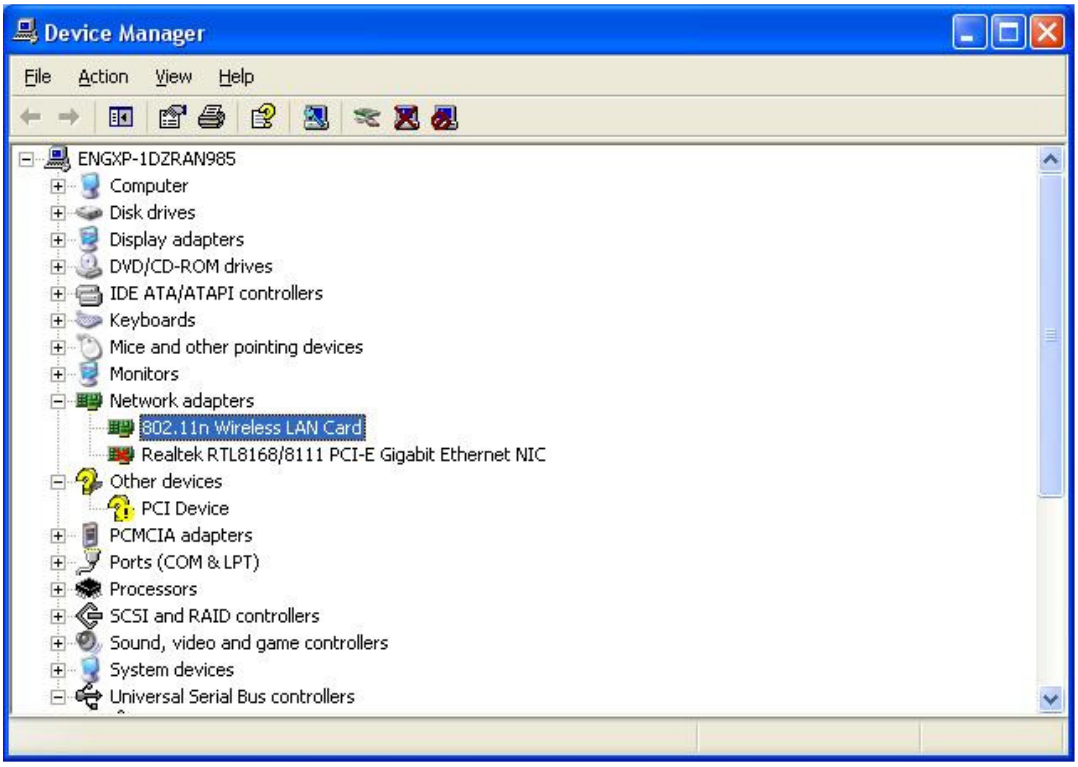
1. Select Network Settings on PSP

2. Select Ad-Hoc mode on PSP

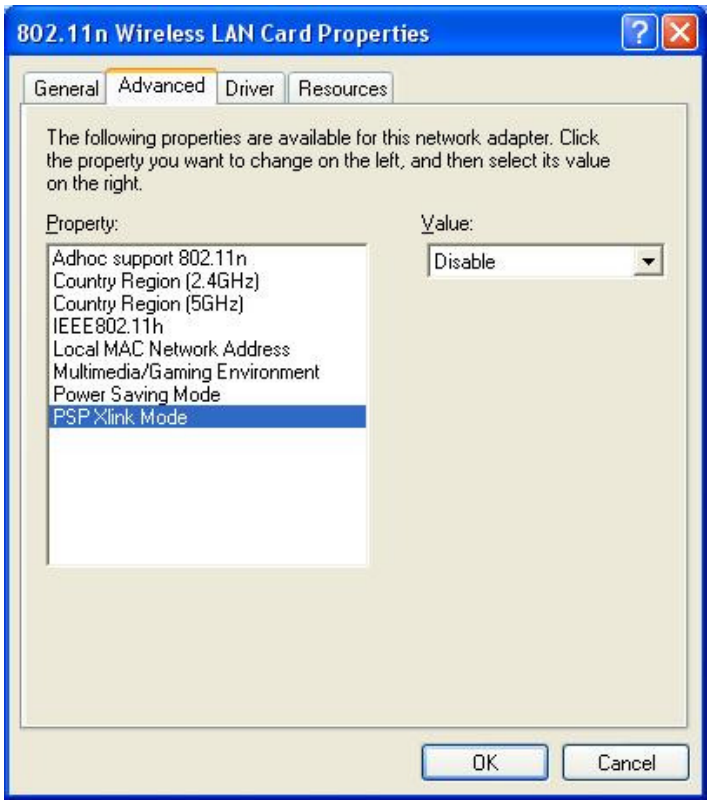
3. Select Channel on PSP



4. Select ***Start*** → ***Control Panel*** → *double-click* ***System*** icon → select ***Hardware*** tab → click ***Device Manager*** button → select **ZEW1642S (*802.11n Wireless LAN Card*)** list in Network adapters.



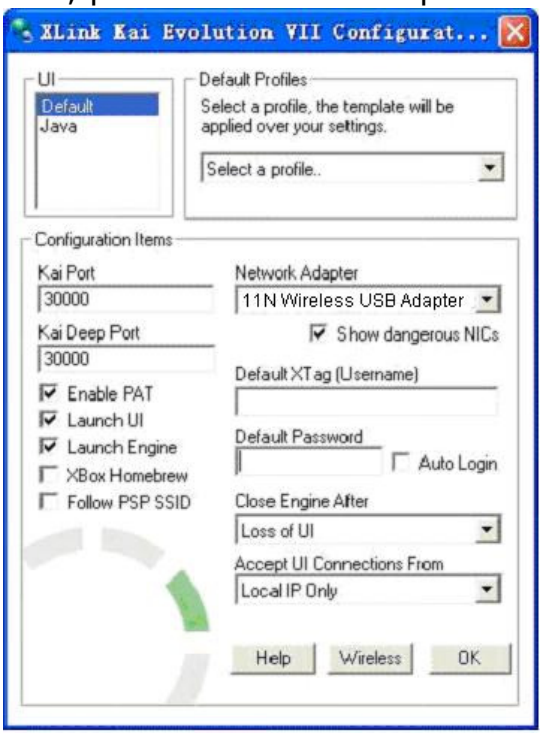
5. Double-click ***802.11n Wireless LAN Card*** to configure properties → select ***Advanced*** tab → select **PSP XLink Mode** list in Property and choose ***Enable*** from Value drop-down menu.



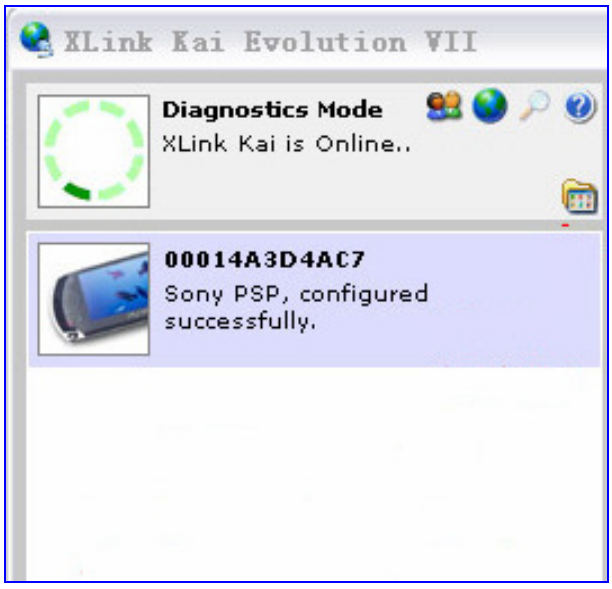
4.2 Configure XLink Kai

XLink Kai is a global gaming network - bringing together XBox, Playstation, Gamecube and PSP users, in one integrated community. It is software running on your PC or Macintosh that allows you to play system-link enabled games online for free.

Select ***Start → All programs → XLink Kai Evolution VII → Start Kai Config*** to configure the user name, password and other parameters.



Login XLink Kai: Select ***Start → All programs → XLink Kai Evolution VII →*** ***Start Kai***. PSP will connect with XLink Kai automatically. The following window will indicate the connection is established well now.



Chapter 5 Product Specifications

General Features	
Standards	IEEE 802.11n IEEE 802.11g IEEE 802.11b
Interface	32-bit PCI
OS	Windows 2000/XP/Vista/7
User interface	Easy to use user configuration software
roaming	Support multipoint auto roaming and configuration; Support wireless network environments auto detect.
LED	Status / activity
Antenna type	External Dipole Antenna (Fixed)
RF and baseband Technical Features	
Frequency range	2.4~2.4835GHz
Radio data rate	11n: 270/243/216/162/108/81/54/27Mbps 135/121.5/108/81/54/40.5/27/13.5Mbps 150/130/117/104/78/52/39/26/13Mbps 65/58.5/52/39/26/19.5/13/6.5Mbps 11g: 54/48/36/24/18/12/9/6Mbps 11b: 11/5.5/2/1Mbps
Modulation	BPSK, QPSK, CCK and OFDM (BPSK/QPSK/16-QAM/64-QAM)
Spectrum Spread Technology	DSSS
Sensitivity	11n 20MHz/40MHz: -65dBm 54Mbps: -72dBm 11Mbps: -88dBm
Antenna Gain	2 x 2.2 dBi
Number of Selectable Channels	USA,Canada: 11 channels Europe: 13 channels
Media Access Protocol	WMM
Data security	WPA/WPA2; 64/128-bit WEP; TKIP/AES
Environmental and Physical	
Operation Temp.	0°C ~ 40°C
Storage Temp.	-20ºC ~ 70ºC
Operation Humidity	10% - 90% RH, Non-condensing

Chapter 6. TroubleShooting

This chapter provides solutions to problems that may occur during the installation and operation of ZEW1642S. Read the descriptions below to solve your problems.

Q1. The ZEW1642S does not work properly.

A: Reinsert ZEW1642S into your PC's PCI slot.
Right click on My Computer and select Properties. Select the device manager and click on the Network Adapter. You will find ZEW1642S if it is installed successfully. If you see the yellow exclamation mark, the resources are conflicting. You will see the status of ZEW1642S. If there is a yellow question mark, please check the following:
Make sure that your PC has a free IRQ (Interrupt ReQuest, a hardware interrupt on a PC.)
Make sure that you have inserted the right adapter and installed the proper driver. If ZEW1642S does not function after attempting the above steps, remove it and do the following:
Uninstall the driver software from your PC.
Restart your PC and repeat the hardware and software installation as specified in this User Guide.

Q2. I cannot communicate with the other computers linked via Ethernet in the Infrastructure configuration.

A: Make sure that the PC to which ZEW1642S is associated is powered on.
Make sure that ZEW1642S is configured on the same channel and with the same security options as with the other computers in the Infrastructure configuration.

Q3. What should I do when the computer with ZEW1642S installed is unable to connect to the wireless network and/or the Internet?

A: Check that the LED indicators for the broadband modem are indicating normal activity. If not, there may be a problem with the broadband connection.
Check that the LED indicators on the wireless router are functioning properly. If not, check that the AC power and Ethernet cables are firmly connected.
Check that the IP address, subnet mask, gateway, and DNS settings are correctly entered for the network.
In Infrastructure mode, make sure the same Service Set Identifier (SSID) is specified on the settings for the wireless clients and access points.
In Ad-Hoc mode, both wireless clients will need to have the same SSID. Please note that it might be necessary to set up one client to establish a BSS (Basic

Service Set) and wait briefly before setting up other clients. This prevents several clients from trying to establish a BSS at the same time, which can result in multiple singular BSSs being established, rather than a single BSS with multiple clients associated to it.
Check that the Network Connection for the wireless client is configured properly.
If Security is enabled, make sure that the correct encryption keys are entered on both ZEW1642S and the access point.